

***Front Cover Photograph***

Primary rainforest near Balikpapan, East Kalimantan, Indonesia

***Back Cover Photograph***

Logged-over forest cleared by Banjarese migrant for tree crops



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# SUSTAINING SOUTHEAST ASIA'S FORESTS

**Research Network Report**

**Number 1 ● June 1992**

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## Background

The rapid disappearance of the earth's tropical rainforests is causing worldwide concern. Equatorial forests contain an estimated 50 percent of all known animal and plant species. Tropical forests play an important, yet poorly understood role in shaping the Earth's climate and atmosphere. Upland forests help regulate surface and ground water essential for farming systems and community livelihoods. Forests are the home of millions of rural families. As these forests are disturbed and cleared, the multiplicity of functions they perform is disrupted, destabilizing social, political, economic, and environmental systems from the most micro to the global scale.

In Southeast Asia primary rainforests have contracted from 250,000 million hectares in 1900, to less than 60 million hectares in 1989. In Indonesia, a nation possessing 10 percent of the world's tropical rainforests, over one million hectares of forest are cut each year. The rapid reduction of Asia's natural forest lands reflects the failure of conventional management systems to ensure the survival of these diverse and important ecosystems. In the past, governments in search of foreign exchange revenues have encouraged rapid timber exploitation, leasing out vast areas to private companies controlled by multinationals and politically and economically powerful people. Population growth floods the forest with poor migrant people in search of farmland, while tribal communities are forced to migrate or are increasingly marginalized in their ancestral homelands. Government forest departments hold authority for 25 to 75 percent of a nation's total land area; yet, they are pushed by political, economic, and demographic forces and have limited ability to control access and guarantee that forest resources are managed sustainably. The absence of effective management often allows a sequence of human activities to disturb and erode the forest ecosystem, which in some cases eventually leads to almost complete devegetation and loss of top soil. In other cases, the forest may be converted to agricultural land or tree plantations.

The process of forest degradation can be slowed, stopped, and reversed by the establishment of effective access controls. Many communities located near forest lands are in a position to protect these resources. Due to their proximity they can mediate the interaction of outsiders with the forest. Many communities are also economically dependent on the forest for both commercial and subsistence products. Indigenous peoples usually have considerable understanding of the species

composition and ecological functions of tropical forests and strong **socio-religious ties** to their environment. Farming communities may perceive a need to manage forest **resources because** of their hydrological and nutritive contributions to agriculture. In communities where sustaining forest **resources** is perceived to be important, members may be motivated to provide labor and other resources to effectively protect and **utilize** the forest on a continuing, long-term **basis**.

Community management provides an opportunity to sustain these rich natural ecosystems. **Shifting** management priorities from timber extraction to **nurturing** and collecting of a diverse range of forest products may also increase productivity, generating new employment **opportunities** in harvesting, processing, and marketing. Comprehending the management potential of community groups, a growing number of countries in **the Asia** region are in the process of formulating new policies to recognize communities **as** local managers of **natural** forest lands. Yet there is little experience related to the ways government agencies can best decentralize resource use authority, and support the establishment of effective local community controls. The transition from over 100 years of state custodianship and commercial logging to a system of community-based, sustained yield management requires information, understanding, and time. Given the diversity and complexity of local **use** practices and forest **ecosystems** within Asian countries and across the region diagnostic research is needed to guide the evolution of new community forest management systems.

## The Southeast Asia Sustainable Forest Management Research **Network**

The objective of the Southeast Asia Sustainable Forest Management Research Network **is** to study a **series** of disturbed natural forest areas where community management may be appropriate or is already in effect. Research **groups** examine the process of forest disturbance, transformation or recovery, and utilization practices. Particular stress is placed on assessing the economic potential of natural forest environments under community protection. **The** resulting research will provide guidance to communities and forest departments in developing viable production **systems**, particularly in disturbed natural forest environments. Methodological tools developed through the research program will **be** formulated into a field manual for **future** diagnostic research by forest departments and other community forestry support groups.

The Network was formed in **1991** to bring together experienced researchers from the region to assess ways to stabilize forest use. Over the past decade member scientists and their participating institutions have already conducted **extensive** studies of forest use practices within their **own** countries. The Network provides a forum for sharing the **results** of field research within the **Southeast Asia** region. The Network was also established to help scientists and practitioners **secure** funding for applied research on sustainable forest management. Studies supported by the Network examine patterns of natural forest use and disturbance resulting from commercial logging and subsistence use, as well as indigenous management practices. Participating country study teams attempt to design their **research** programs to respond to emerging policy issues within their respective countries. **Currently**, Network researchers are also **working** with government agencies to examine the economic viability of community-based, sustainable forest product (NTFP) management systems in logged over **natural** forests. This involves the documentation of collection, processing, and marketing practices.

The Network interacts with other Asian regional **research** programs including those **carried-out** by the **Harvard** Institute for International Development, the FAO, the Environment and Policy Institute, the Regional Community **Forestry** Training Center (RECOFTC) in Bangkok, and the **Ford** and Rockefeller Foundations.

### **Recent Network Meetings on Research Methods**

The Research Network met for the first time **January 23–25, 1992**, in Bangkok. The purpose of the **three-day meeting** was to allow **research** team members from **Indonesia, Thailand, and The Philippines** to discuss their study plans and to exchange ideas regarding appropriate **research** methodologies for assessing institutional, ecological, and economic constraints and opportunities for establishing sustainable **forest management** systems in production **forest** areas. **To** facilitate this planning process, the workshop **participants** alternated **between** large group **discussions** and country team meetings. Resource **persons** and support members assisted **research** teams **to assess** their methodological needs and write up their **revised** research plans during the course of the **meeting**. Approximately twenty-five people attended the meeting. **These** included five **persons** each from The Philippines and Indonesia, with the

remainder comprised of the Thai research group and resource persons from the Center for Ecological Sciences at the Indian Institute of Science, the Harvard Institute of International Development, and the Department of Forestry and Natural Resources at the University of California.

A second meeting on research methods was held at RECOFTC in mid-May, 1992. Scientists from South and Southeast Asia used this opportunity to identify critical forest management research issues, discuss the effects of commercialization on non-timber forest production, and to explore the forces driving deforestation in the region. The meeting was organized by the Harvard Institute for International Development as part of a collaborative effort between two emerging research networks.

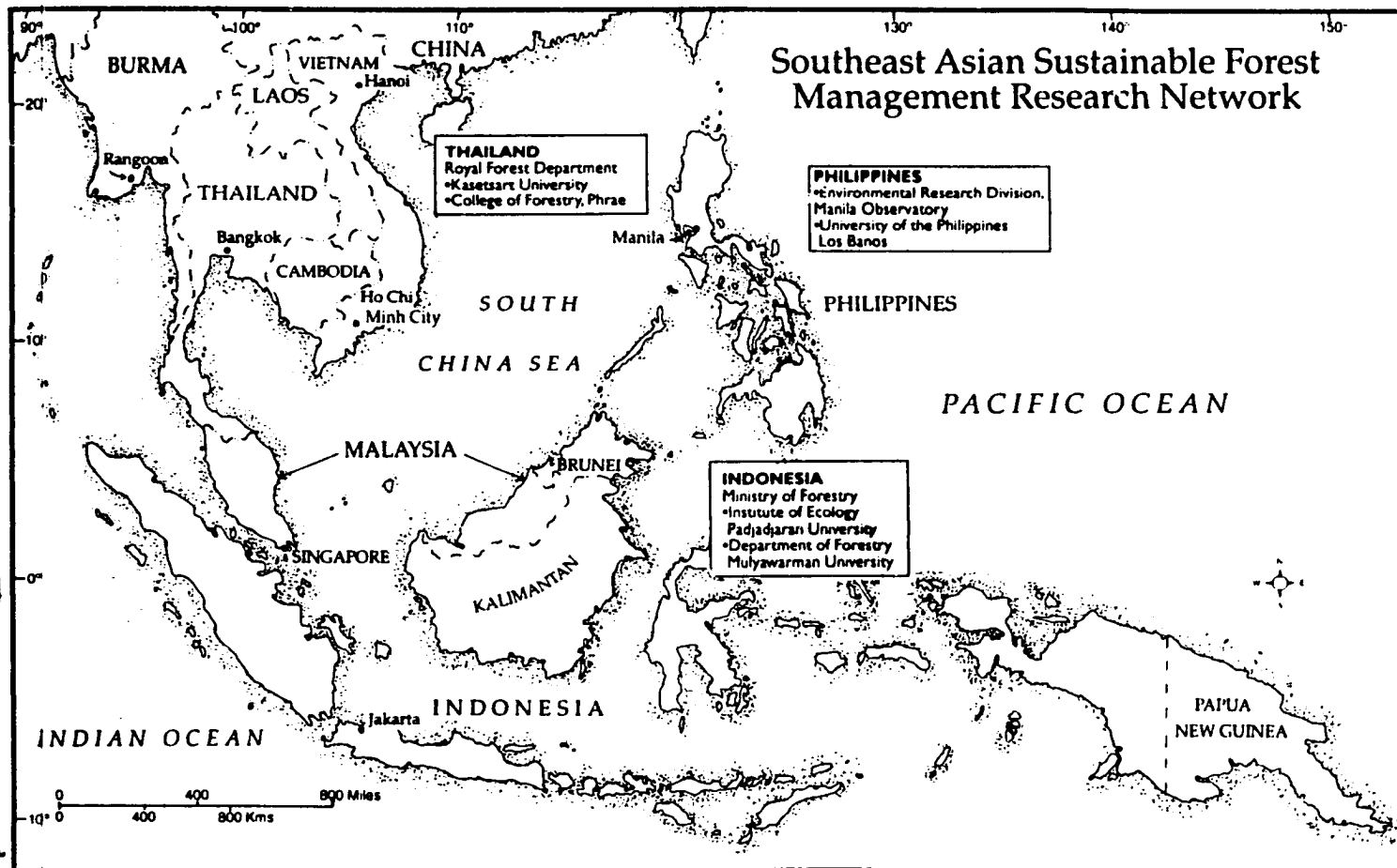
### Future Network Activities

Country research teams are currently collecting and analyzing field research findings. In January 1993 the second Network meeting will be held in Indonesia to discuss preliminary results. Emphasis will be placed on discussing the implications of the findings for forest management policies and programs in each national context, deciding how best to structure the written and oral dissemination of study findings, and considering the directions of the second phase of their funding requirements. A larger regional meeting be held in June 1993 to present the Network's initial research findings to national planners and donor agencies.

In years to come it is hoped that the Network can sustain its support activities, encouraging scientific and programmatic exchanges which lead to more sustainable forest management in the Southeast Asia region. Strengthening ties between researchers, foresters, and rural development specialists to enhance communication and accelerate learning will be a primary Network objective. Through meetings, publications, and collaborative research activities participants aspire to identify and disseminate strategies to overcome conflicts among communities and the state allowing new forms of participatory resource management to evolve. Continued support from participating forest departments and donor agencies will be a key to the longer term success of this effort.

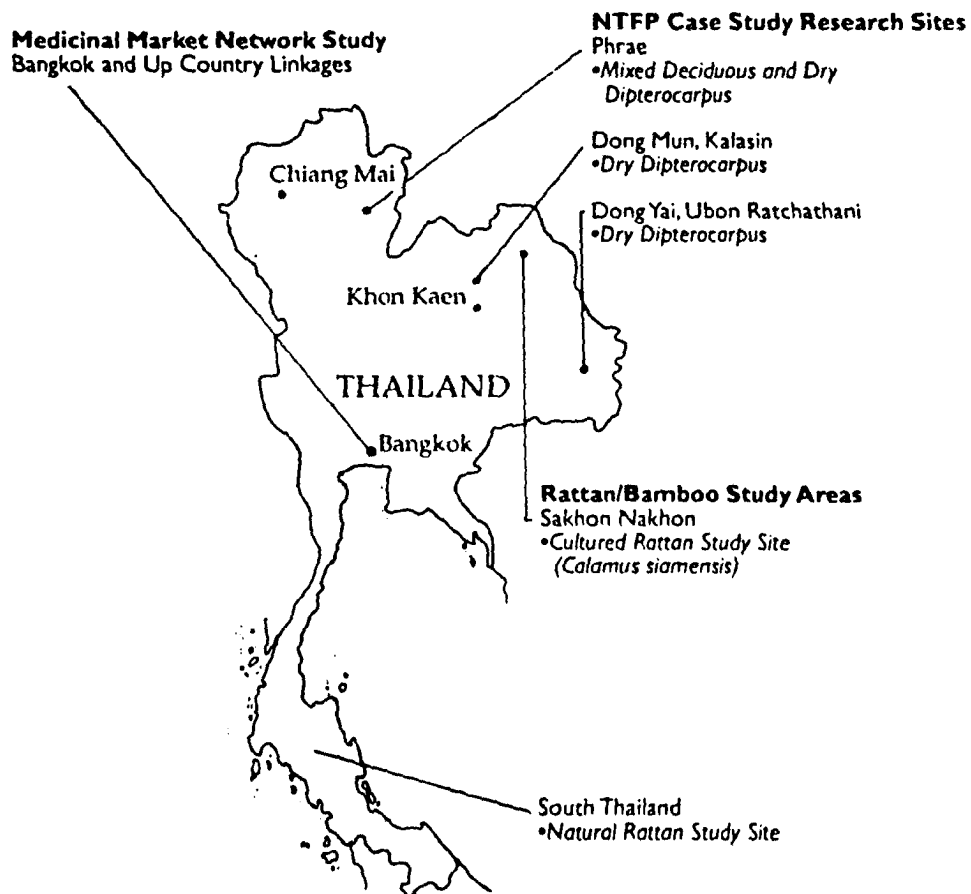
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## Thailand Research Sites



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### THAILAND

In 1954, about 60 percent of Thailand's total land area was under forest cover; by 1988 this had been reduced to 28 percent. In the Northeast, commercial timber cutting combined with extensive forest clearing for agricultural crops has resulted in forest cover declining to 17% of the land area by 1980. While logging has been banned temporarily, illegal felling continues, and the value of cleared forest lands is increasing rapidly, encouraging further deforestation. Today, forest cover is scattered and limited to more isolated areas and hill tracts, protecting important watersheds. For Thailand's five million forest dwellers, the destruction of the nation's forests has created economic and environmental problems. In some areas communities have organized to protect local forest areas from further disturbance, facilitating natural regeneration. Incidence of effective community management seems driven by concerns over the environmental impact of deforestation, fears of loss of important forest products, and a concern that outside interest groups will "capture" the forest resources unless the community takes action.

In many areas, however, migrant communities are anxious to clear forest lands in order to plant cassava and other cash crops. Unless communities feel that the standing forest is more valuable as a forest than as agricultural land, it is likely that clearing will continue. At the same time, concern over the need for watershed protection has stimulated the emergence of a government policy to resettle forest communities living in many upper watersheds.

The military has ~~taken~~ the initiative to move forest communities in both the north and northeast. The past involvement of some senior military personnel in the timber trade has caused concern that the removal of communities could lead to accelerated timber exploitation. Many villages are attempting to resist resettlement efforts, which have been widely reported in the press and documented by Thai nongovernment organizations. A number of Thai research groups and foresters are ~~seeking~~ to find alternatives to resettlement through the formulation of collaborative management agreements with upland communities.

An important element in successful local management systems is a sustainable flow of valuable ~~goods from~~ the forest. While timber has received overwhelming attention in the past, non-timber forest products make a significant contribution to the local cash and kind economy, ~~as~~ well as in foreign exchange earnings. The lack of information, however, regarding the economic importance of non-timber forest products ~~has~~ restricted the emergence of better management programs for this sector. The Thai research group is examining how rattan, medicinal plants, and other forest products might provide a basis for community management through the generation of employment opportunities and income, while protecting the nation's forest ecosystems and biodiversity.

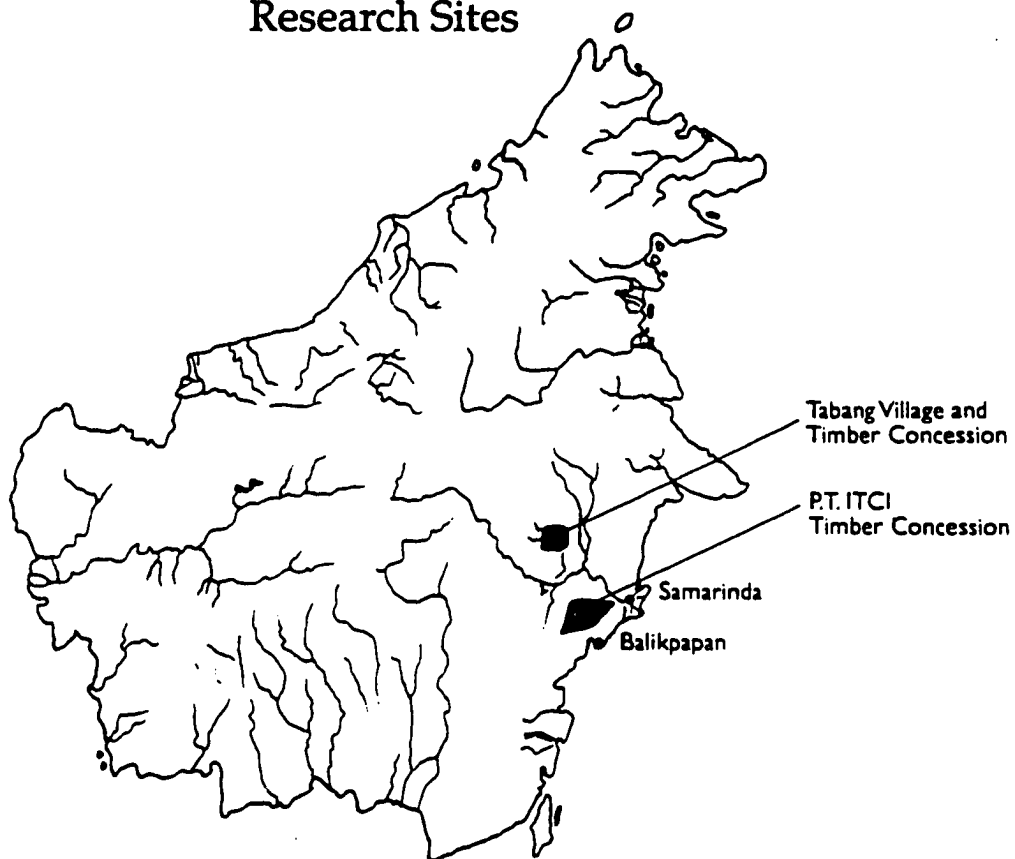
The Thai research team, comprised of scientists from Kasetsart University, the College of Forestry at Phrae, and the Royal Forest Department, is studying forest utilization ~~patterns~~ in one site in North Thailand (~~Phrae~~), and two areas in the Northeast (Dong Yai and Dong **Mun**). In Dong Mun in Kalasin Province, the forests have experienced rapid clearing over the past twenty years, often initiated by commercial logging activities, followed by clearing for such agricultural crops as cassava. In Dong Yai in Ubon Ratchathani Province, after some initial logging had taken place, nine villages in the area jointly began ~~protecting~~ the forest from further disturbance. In all three study sites the team is assessing the flow of forest products to local communities, both in terms of volume and value.

Selected case studies of commercial forest products, including medicinals and rattan, will be used to assess how the communities, the Royal Forest Department and nongovernment organizations can ~~further~~ improve the production, processing and

- marketing of these products. The Thai medicinals research project involves tracing the sources of important forest-based pharmaceutical from wholesalers in Bangkok and assessing national production volumes and values, as well as growth potential. The study **has** already identified several hundred medicinal products; the thirty with the greatest volume and value are now being traced **to** their collection areas. The rattan study focuses on culturing techniques, both within and outside natural forest areas. Enhanced rattan yields would increase forest-based income and help sustain community interest in protecting natural forests.

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## East Kalimantan, Indonesia Research Sites



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## INDONESIA

Indonesia's tropical rainforests possess a wealth of natural beauty, biodiversity, and rich cultural traditions. Of the nation's approximately **135** million hectares of forest area, **65** million have been designated for production activities. The rapid exploitation of these resources by large private sector operators and local populations has led to an estimated **loss** of **1** to **1.5** million hectares of forests annually and the displacement of thousands of forest communities. In Indonesia, there are nearly 600 logging concessions operating (HPH) in production forest areas. Many have lease rights to vast areas of 250,000 to **2,500,000** hectares. While commercial timber extraction has yielded considerable income to the government and private operators, there is concern within the Ministry of Forests that current management practices—including the selective cutting and planting and clear cutting systems—are not sustainable and are leading to ecological degradation. **This** is due both to the unwillingness of concessionaires to follow Ministry policies and the growing population pressures and forest dependencies of local people. At the same time local people often get few benefits from logging activities and are either displaced or are left with a disturbed environment once the timber extraction process is completed. Logging often takes place on land that is considered part of their traditional homelands and community members may receive nothing from the timber company or only a token payment for the timber extracted. **This** has placed the logging companies and the Ministry in conflict with local communities and international environmental groups.

There is a **growing** desire in the Ministry of Forests to seek new ways to improve the prosperity of forest communities while increasing the **sustainability** of forest ecosystems through less disruptive **use** practices. In response to these needs, a **research** team was formed consisting of scientists and foresters from the Ministry of Forestry, **the** Institute of Ecology at Padjadjaran University, and the Department of Forestry at Mulyawarman University. The team **has** chosen the province of East Kalimantan as their research area. East Kalimantan has long been the center of commercial logging in Indonesia, generating an estimated **58%** of national timber revenues. Currently, there are over **100** commercial timber companies operating in the province. Aside from the logging **sector**, East Kalimantan **has** attracted tens of thousands of migrants from other parts of Indonesia, accelerating the process of forest land conversion for agricultural and estate **crops**.

The team selected two research sites for the study. The first is located within the 600,000-hectare International Timber Corporation (ITCI) logging concession, of which **90** percent of the primary forest **has** been commercially felled over the past twenty years. While the current management plan calls for either a second round of logging or the establishment of fast-growing pulpwood plantations, there are many ecological and economic problems associated with both. The area, located along the Balikpapan-Samarinda road, is also under intense pressure from Buginese, Banjarese, and Javanese migrants who clear logged-over forest land for farmland and tree crops. Few dispute that current forest **use** practices will lead to the elimination of all natural forests in the area. The team attempts to **assess** alternative management systems that may allow natural forests to remain, while contributing to the livelihood of the growing migrant and farming communities.

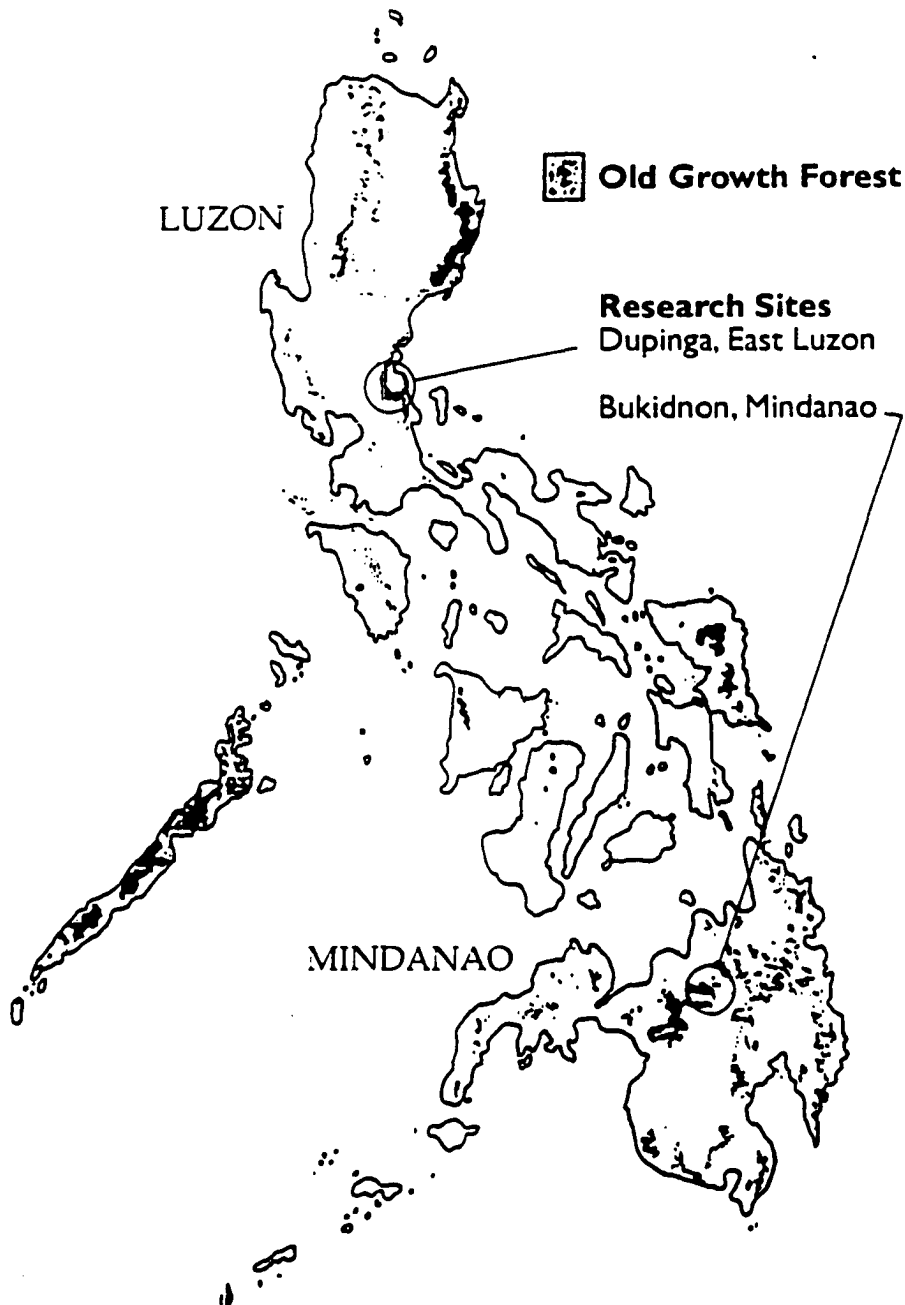
The second site **of** Tabang is located in the upper reaches of the Belayan River, approximately **60** hours from Samarinda by boat. A logging concession is also **operating** in the area. Tabang is **populated** by **indigenous** communities comprised of Kenyan and **Penun** Dayak people who are primarily engaged in swidden activities and the collection of non-timber forest products. In the past communities gained substantial income from rattan, birds nests, fruits, **gums**, and other materials collected in the forest;

however, logging and overexploitation have resulted in many of these goods to becoming harder to find. The team will examine traditional collection systems and changing patterns of product availability in an attempt to determine whether communities might be able to increase forest productivity through alternative approaches to management, **particular**y in regenerating logged-over areas.

The **TICI** and Tabang sites were chosen to reflect two distinctive product forest management contexts common in Indonesia, the former with high migrant population densities and strong market integration, and the latter with **low** populations **of** traditional groups and relative market isolation. In both sites, the research team intends to compare changes in forest vegetation over time, documenting disturbance and regeneration patterns. The team will also describe local forest use practices, the types and volumes of forest products collected, marketing channels for selected products, and projections of the future availability. Finally, the team will assess the advantages and disadvantages of different management options for logged-over forest areas in the two contexts described above. The team will attempt to consider how individual or group ownership, harvesting rights, compensation **sys-**tems, or other utilization or management partnerships might be utilized to **stabilize** forest resource use. The findings will be reviewed with provincial and national planners.



# Philippines Research Sites with Old Growth Forest



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## THE PHILIPPINES

Like many nations in Southeast Asia, The Philippines has experienced extensive deforestation, especially during the past thirty years. While a national logging ban was enacted some years ago, timber extraction still persists in presenting a serious threat to upper watersheds and downstream agriculture. **At** the present time most of the country's remaining old growth forests exists in the Sierra Madre Mountains in eastern Luzon, and in the uplands of Mindanao. **The** research team **has** selected sites in both areas where logging **is** ongoing to determine what **types** of sustainable forest management systems might be established **to** halt the further disturbance of important forest areas and upper watersheds. The team assumes that the meaningful involvement of communities in forest management depends **on** their empowerment by responsible government agencies. The Philippine government's Department of Energy and Natural Resources (DENR) has been effective in creating a variety of legal and programmatic mechanisms to involve communities in forest management and reforestation programs. Unfortunately, the lack of integration of these programs has often put them in conflict with one another and limited the effectiveness of efforts to respond to forest management problems.

The research team, comprised of scientists from the Environmental Research Division of the Manila Observatory, with the assistance of researchers **from** Ateneo University and the University of The Philippines at Los Baños, is studying resource use systems in

two upland watersheds where logging is ongoing to assess how sustainable forest use systems involving communities could evolve. The team will examine the appropriateness of different government community forestry programs within the research watershed areas, and the ways in which they might be linked to form an integrated management program. A critical part of the research involves documenting how forest products are harvested and distributed among outside groups and community members. Viable management systems will need to find ways to overcome past conflicts erupting over these resources, establishing mutually acceptable controls on collection and guidelines for distribution.

In order to achieve the objectives outlined above the team will document the history of vegetative change within the watersheds and common patterns of forest disturbance. They will also explore use practices and the economic importance of forest resources to local community groups. This diagnostic research will form the basis for a second phase of the study which will involve the team and the communities in developing integrated watershed management plans.

The first research area is the Dupinga Watershed of the Sierra Madre Mountains in eastern Luzon. The Dupinga still possesses a significant amount of old growth forest, which has not been felled due to its relative isolation and location in the typhoon zone. The watershed falls within a logging concession and could be commercially exploited in the near future, while illegal timber cutting is common. Most of the population is comprised of Ilocano-speaking agricultural communities whose farmlands have been threatened by erosion due to the deteriorating condition of the upper watershed. These villages have sent representatives to Manila to ask the government to halt logging activities. There are also several groups of tribal Dumagat people in the area, many of whom are dependent on the collection of rattan and other forest products for their livelihood. Conflicts between Ilocanos and Dumagats, as well as with outside logging operators, have blocked attempts to establish effective management practices for the old growth forests of the upper watershed, but growing community concerns over environmental degradation provide a basis for a new dialogue based on diagnostic research findings generated by the research team.

The second research site is located in the uplands of Bukidnon Province. This area also possesses old growth forest which is being exploited by logging companies, bringing them into conflict with tribal Manobo villages who have resided there for sometime. Manobo communities are also periodically at war with one another, and under pressure from migrant families ~~from~~ the Visayas who are entering the area. Tensions between the Manobo communities, Visayans, and the logging company have created conflicts, while timber exploitation and agricultural land conversion has led to rapid deforestation. The presence of the National Peoples Army in the area and their need to raise revenues through timber extraction further complicate attempts to stabilize resource use in the upper watershed of the Pendaran Mountain Range. The research team will attempt to understand resource **use** practices of these groups in the upper watershed. In the second phase of the study an attempt will be made to assist the Manobo communities living along the mountain ridge to establish an integrated forest management plan while **seeking** the agreement of primary actors in the area and government sanction.



For further information on the Southeast Asia Sustainable Forest Management Research Network, contact country program coordinators or the facilitator.

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